The opinion in support of the decision being entered today was ***not*** written for publication and is ***not*** binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte DANIEL O. JONES,
JOHN PARKS, ERIC WHITE
and
DUSTAN SKIDMORE

Appeal No. 2004-2053
Application 09/773,704

ON BRIEF

Before PAK, WALTZ and DELMENDO, ***Administrative Patent Judges***.

PAK, ***Administrative Patent Judge***.

DECISION ON APPEAL

This is a decision on an appeal under 35 U.S.C. § 134 from the examiner's refusal to allow claims 1 through 8 and 19, which are all of the claims in the above-identified application. Subsequent to the final Office action mailed November 14, 2003, claims 20 through 27 have been canceled. See the Brief, page 2.

APPEALED SUBJECT MATTER

The subject matter on appeal is directed to a method of operating a fuel cell stack which comprises routing at least some of the power produced by the fuel cell stack not consumed by a first load, e.g., appliances and/or electrical devices associated with houses, to a second load, i.e., a battery. See, e.g., claims 1 and 3, together with the specification, page 4. Further details of the appealed subject matter are recited in illustrative claims 1 and 3 reproduced below:

1. A method of operating a fuel cell stack, comprising:

providing a fuel flow to the fuel cell stack to produce power, at least some of the power produced by the fuel cell stack being consumed by a first load;

in response to a decrease in at least one of the power produced by the fuel cell stack and the power consumed by the first load, determining whether to route at least some of the power produced by the fuel cell stack and not consumed by the first load to a second load; and

based on the determination, selectively routing said at least some of the power produced by the fuel cell stack and not consumed by the first load to the second load.

3. The method of claim 1, wherein

the second load comprises a battery; and

the determining comprises determining whether the battery is capable of being charged using said power produced by the fuel cell stack and not consumed by the first load.

PRIOR ART

As evidence of unpatentability of the claimed subject matter, the examiner relies on the following prior art references:

Bonnefoy	5,714,874	Feb. 3, 1998
Hauer	6,214,484 B1	Apr. 10, 2001
Singh et al. (Singh)	2002/0076588 A1	Jun. 20, 2002
Bohrer et al (Bohrer) (Published European Patent Application)	0 782 209 A1	Jul. 2, 1997

REJECTIONS

The appealed claims stand rejected as follows:

(1) Claims 1 through 4 and 6 under 35 U.S.C. § 102(b) as anticipated by, or in the alternative under 35 U.S.C. § 103(a) as obvious over, the disclosure of Bonnefoy;

(2) Claims 5 and 7 under 35 U.S.C. § 103(a) as unpatentable over the combined disclosures of Bonnefoy and Bohrer;

(3) Claim 8 under 35 U.S.C. § 103(a) as unpatentable over the combined disclosures of Bonnefoy, Bohrer and Hauer; and

(4) Claim 19 under 35 U.S.C. § 103 as unpatentable over the combined disclosures of Bonnefoy, Bohrer and Singh.

OPINION

We have carefully reviewed the claims, specification and applied prior art, including all of the arguments and evidence advanced by the examiner and the appellants in support of their respective positions. This review has led us to conclude that the examiner's Sections 102 and 103 rejections are well founded. Accordingly, we affirm the examiner's rejections for those findings and conclusions set forth in the Answer. We adopt the examiner's findings and conclusions as our own and add the following primarily for emphasis and completeness.

As found by the examiner (Answer, pages 4-6), Bonnefoy teaches routing at least some power produced by a fuel cell stack not consumed by a first load to a battery (second load) for the same reasons disclosed by the appellants. The appellants acknowledge that "Bonnefoy teaches ***automatically*** routing electric power to a battery in the event of a deficiency between the power that is consumed by the load 4 and the power that is available at

fuel cell terminals." See the Brief, page 14. However, the appellants argue that Bonnefoy does not teach or suggest "determining whether to route excess energy to the battery; and thus, it follows, Bonnefoy does not teach or suggest selectively routing based on such a determination" as required by claim 1. See the Brief, page 15. We do not agree.

As pointed out by the examiner (Answer, page 5), Bonnefoy teaches at column 2, lines 58-60 that "[i]f the load 4 requires an electric power lower than the one available at the fuel cell 1 terminals, the battery takes profit from the excess of electric energy and recharges." Implicit in this teaching is that some form of determination is necessarily or inherently made as to routing excess electric energy to a battery before the excess energy is delivered to the battery. Even if the excess electrical energy is automatically routed to a battery as urged by the appellants, the term "automatically" as explained by the examiner at page 6 of the Answer implies having a self-acting or self-regulating mechanism. In other words, some form of determination is made by one of ordinary skill in the art or by a self-regulating mechanism regarding whether to route the excess

electrical energy to a battery. Thus, we concur with the examiner that determining whether to route excess energy to the battery and routing the excess energy to the battery based on such a determination inherently or necessarily occur in the method described in Bonnefoy. In any event, we find that the above teaching referred to by the examiner would have led one of ordinary skill in the art to make an appropriate determination before routing the excess energy to the battery, motivated by a reasonable expectation of achieving the advantages indicated in Bonnefoy.

The appellants argue that Bonnefoy does not teach or suggest "determining whether the battery [the second load] is capable of being charged using said power produced by the fuel cell stack and not consumed by the first load" as required by claims 2, 3 and 4. See, e.g., the Brief, pages 17-19. We do not agree.

Again, we refer to Bonnefoy's teaching at column 2, lines 58-60 which states that "[i]f the load 4 requires an electric power lower than the one available at the fuel cell 1 terminals, the battery takes profit from the excess of electric energy and **recharges** [emphasis added]." Implicit in this

teaching is that the battery has been necessarily or inherently checked to determine whether it is capable of being charged. To the extent that such a determination is not inherently made, we determine that Bonnefoy would have at least suggested to one of ordinary skill in the art to make such a determination before charging the battery. To do otherwise is to impute stupidity on the part of one of ordinary skill in the art. ***See In re Sovish***, 769 F.2d 738, 743, 226 USPQ 771, 774 (Fed. Cir. 1985).

With respect to claim 6, the appellants do not dispute the examiner's finding at page 7 of the Answer that:

> It is disclosed that the control means includes means for measuring the voltage at the terminals of the fuel cell, and wherein the control means respectively increments and decrements the maximum intensity value of the current following through the dc converter when the voltage measured of the fuel cell is above and below said predetermined range; wherein said predetermined range corresponds to a voltage range at which a power output of the fuel cell is maximum (claims 3-4). It is also made known that, in practice, the reference value of the voltage at the fuel cell is determined as being the point of the voltage/current characteristic of the fuel cell corresponding to a maximum power output in normal working conditions of the fuel cell (col 1, lines 59-63).

Implicit in the above teaching is that the fuel flow responsible for increasing or decreasing the voltage of a fuel cell stack is

controlled in response to the voltage detected. Thus, we concur with the examiner that Bonnefoy necessarily teaches or would have suggested decreasing or increasing the fuel flow in response to the detection of a decrease or an increase in the power (voltage) produced by the fuel cell stack and/or consumed by the first load.

With respect to claims 5 and 7, the appellants do not dispute the examiner's determination that "it would have been obvious to one skilled in the art at the time the invention was made to both regulate a terminal voltage of the battery and have the specific fuel flow decreased . . . in the method of . . . Bonnefoy." Compare the Answer, pages 8-9, with the Brief and the Reply Brief in their entirety. Rather, the appellants argue that claims 5 and 7 are allowable for the same arguments set forth above. For the reasons indicated ***supra***, we are convinced that those arguments are not persuasive.

With respect to claim 8, the appellants do not dispute the examiner's determination that "it would have been obvious to one skilled in the art at the time the invention was made to use a fuel processor (reformer) to provide fuel [flow] . . . ."

Compare the Answer, page 10, with the Brief and the Reply Brief in their entirety. Rather, the appellants rely on the same arguments applicable to claim 1 above to establish patentability. See the Brief, page 16. Thus, for the same reasons set forth above, we are not convinced by the appellants' arguments.

With respect to claim 19, the appellants do not dispute the examiner's findings set forth below:

> Singh et al disclose a fuel cell system providing means for oxidizing heated reformed fuel gas in fuel cell during transient load conditions (section 0009). It is disclosed that the electrical storage device is capable of electro-chemically oxidizing a quantity of reformer gas contained within an anode chamber of the fuel cell during transient load conditions by charging from a preset state of charge towards full capacity (abstract).
>
> . . . [I]t is apparent that the routed power is to operate the means for oxidizing during transient load conditions that prevent transient increases in the combustion anode gas during changes in electrical load demand.

Compare the Answer, page 11, with the Brief and the Reply Brief in their entirety. Thus, we concur with the examiner that "it would have been obvious to one skilled in the art at the time the invention was made to route power to an oxidizer in fuel cell

system of Bonnefoy and the EP'209 publication as taught by Singh. . . ."

The appellants also appear to rely on the same arguments applicable to claim 1 above to establish patentability. See, e.g., the Brief, pages 21-22. Thus, for the same reasons set forth above, we are not convinced by the appellants' arguments.

Thus, after due consideration of all of the evidence and arguments proffered by both the examiner and the appellants, we determine that the preponderance of evidence weighs in favor of unpatentability of the claimed subject matter. Accordingly, we affirm the examiner's decision rejecting all of the appealed claims under 35 U.S.C. §§ 102(b) and 103(a).

CONCLUSION

The decision of the examiner is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED

CHUNG K. PAK)
Administrative Patent Judge)
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THOMAS A. WALTZ) BOARD OF PATENT
Administrative Patent Judge) APPEALS
) AND
) INTERFERENCES
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ROMULO H. DELMENDO)
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CKP:psb

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